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09/582,609	09/06/2000	Gunter Fuhr	A33331-PCT	4278

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EXAMINER

PADMANABHAN, KARTIC

ART UNIT	PAPER NUMBER
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1641

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/582,609  
Filing Date: September 06, 2000  
Appellant(s): FUHR ET AL.

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James J. Maune  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed January 5, 2004.

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**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 45-51 and 56.

In view of applicant's arguments in their Appeal Brief, claims 29-36, 38-43, 53, and 55 are allowed.

Claim 37 is withdrawn from consideration as not directed to the elected invention.

Claims 1-28, 44, 52, and 54 have been canceled.

**(4) *Status of Amendments After Final***

No amendment after final has been filed.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

A. In view of applicant's arguments, claims 29-36, 38-43, 53, and 55 are allowed.

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B. As such, the first issue is now whether claim 56 is properly rejected as being anticipated by Morishima et al. under 35 USC 102(b).

C. The second and final issue is whether claims 45-51 are properly rejected as prima facie obvious under 35 USC 103(a) over Morishima et al. in view of Fuhr et al.

**(7) *Grouping of Claims***

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because the claims drawn to a method are deemed to be distinct from those claims drawn to a device. Since the method claims have been determined to be allowable, the only group pending on appeal is those claims drawn to a device: Claims 45-51 and 56.

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

K. Morishima et al. in "Proc. Of IEEE" 1997, page 155.

G. Fuhr et al. in "Biochim. Biophys. Acta", 1201, 1994, page 353.

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

1. Claim 56 is rejected under 35 U.S.C. 102(b) as being anticipated by Morishima et al. (1997). The reference discloses a microchannel system for the screening of E. coli, wherein the bacteria are manipulated by dielectrophoretic force and radiation pressure of a laser tweezer (abstract). The technique of the reference combines optical trapping and electric forces for the manipulation of particles and isolation of one particle. The microelectrodes of the device of the reference induce migration of the bacteria, and the E. coli are three-dimensionally optically

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trapped at the focal beam of the laser beam, which is within the electrode arrangement. By controlling the magnitude of the electric field, unneeded bacteria are dispersed (p. 156). In addition, with the use of a laser manipulator, the bacteria can be manipulated as desired. According to the reference, the focal point can be moved arbitrarily with two degrees of freedom, wherein the trapped objects follow the focal point (page 158). The distance between the focus and capture area may still be varied and measured, if desired. The characteristics of each E. coli are dependent on optical recognition using fluorescence microscopy (p. 157). As seen in Figures 2 and 3, pairs of electrodes are spaced from each other on a substrate.

2. Claims 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima et al. (1997) in view of Fuhr et al. (1994).

Morishima et al. teach the use of electric fields and laser tweezers, as previously discussed. However, the reference does not teach the manner in which the microelectrodes are constructed or the arrangement of the electrodes.

Fuhr et al. teach cell manipulation and cultivation under the influence of an electric field. The electrode array of the reference allows for the application of high-frequency electric fields into cell suspensions. The micro scaled electrode structures were manufactured on glass or silicon using semiconductor technology (abstract). The electrodes were made of gold. Four electrodes were spaced apart on the surface of a glass chip (substrate). The electrodes were also optionally coated with thin dielectric layers.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the arrangement of electrodes and method of manufacture taught by Fuhr et al. with the method and device of Morishima et al. because Fuhr et al. teaches that their electrode

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system allows for electric fields that can be used in original cell culture media, such as the E. coli suspensions of Morishima et al. In addition, one could have easily used the manner in which the electrodes were made and arranged of Fuhr et al. with the method and device of Morishima et al. with a reasonable expectation of success. The electrodes of Fuhr et al. were made using conventional technology and materials

**(11) Response to Argument**

1. Applicant argues that the Morishima reference does not anticipated the claims because it does not teach an electrical field cage with a capture point, or a capture point with a minimum electrical field level; however, the only claims left on appeal are drawn to a device, and in claims drawn to a device, only all the components of the device need be taught for the claim(s) to be anticipated, and not the *method* of operation of the device. It is noted that the intended use of a device or a component thereof must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim, as is the case here. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In fact, all applicant's arguments refer to the method of the invention, which claims have already been deemed allowable, and fail to explain why the prior art reference fail to disclose or render obvious the device of the claims.

2. The only other issue on appeal is whether claims 45-51 are properly rendered as obvious by the combination of Morishima et al. and Fuhr et al. Applicant's arguments with respect to claims 45-51 depend on the premise that independent claim 56 is not properly anticipated by Morishima alone, a position that has already been found to be unconvincing.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Kartic Padmanabhan  
Patent Examiner  
Art Unit 1641





June 26, 2004

Conferees

Long Le, SPE, AU 1641

James Housel, SPE, AU 1648

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NEW YORK, NY 10112